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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,316	07/02/2002	Toshiharu Furukawa	BUR920010222	8270
23550	7590	04/21/2004	EXAMINER	
HOFFMAN WARNICK & D'ALESSANDRO, LLC 3 E-COMM SQUARE ALBANY, NY 12207			VU, HUNG K	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/064,316	FURUKAWA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Hung K. Vu	2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) \_\_\_\_ is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_ is/are allowed.  
 6) Claim(s) \_\_\_\_ is/are rejected.  
 7) Claim(s) \_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1)  Notice of References Cited (PTO-892)  
 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_.

4)  Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_.  
 5)  Notice of Informal Patent Application (PTO-152)  
 6)  Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 44 is objected to because of the following informalities: In claim 44, line 1, change “horizontallyoverlap” to “horizontally overlap” for clarity.

Appropriate correction is required.

### ***Specification***

2. The amendment filed 02/04/04 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: “A single insulating layer 24 having a portion that extends on two opposing vertical sides of a second portion of the spacer 16 and contacts the gate electrode 14”.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 34 – 36, 43 and 45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not disclose an insulating layer having a portion that extends on two opposing vertical sides of a second portion of the spacer and contacts the gate electrode, as recited in claim 34.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 21, 22 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chittipeddi (PN 6,426,263, of record) in view of Lin et al. (PN 6,083,827).

Chittipeddi discloses, as shown in Figure 10, a semiconductor comprising, a contact (33) having a portion that extends on two opposing vertical sides of a vertical structure (23) adjacent a first gate electrode (20), and the contact contacts a diffusion (27) adjacent the first gate electrode and is insulated horizontally from an adjacent transistor by an insulating layer (31). (Note Col. 3, lines 33-37 and Col. 2, lines 60-64).

Chittipeddi does not disclose the adjacent transistor having a gate electrode and a spacer adjacent the gate electrode. However, Lin et al. discloses a semiconductor device comprises a first transistor and a second transistor, and the second transistor has a gate electrode and a spacer

adjacent the gate electrode. Note Figures of Lin et al.. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the adjacent transistor of Chittipeddi having a gate electrode and a spacer adjacent the gate electrode, such as taught by Lin et al. in order to perform the multi-function tasks.

With regard to claim 4, Chittipeddi and Lin et al. disclose the contact includes an upper portion that is larger than a lower contact portion [see Figure 10].

With regard to claim 21, Chittipeddi and Lin et al. disclose at least one vertical structure is a spacer. (Note Col. 3, lines 19-21)

With regard to claim 22, Chittipeddi and Lin et al. disclose the contact contacts a substrate (1) at a source/drain region (27) adjacent the spacer. (Note Col. 3, lines 33-37)

With regard to claim 44, Chittipeddi and Lin et al. disclose the contact does not horizontally overlap the adjacent second gate electrode.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34 – 36, insofar as in compliance with 35 USC 112, are rejected under 35 U.S.C. 102(b) as being anticipated by Wei (PN 5,369,303, of record).

With regard to claim 34, Wei discloses, as shown in Figure 9, a semiconductor comprising:

- a gate electrode (16);
- the spacers (40) adjacent the gate electrode;
- a contact (48) having a portion that extends on two opposing vertical sides of a first spacer (40), the contact contacts a diffusion (42) adjacent the gate electrode;
- an insulating layer having a portion that extends on two opposing vertical sides of a second spacer (40);
- a masking layer (32) contacting the gate electrode for insulating the gate electrode from the contact.

With regard to claim 35, Wei discloses the masking layer caps at least a portion of the gate electrode.

With regard to claim 36, Wei discloses the contact has an upper portion that is larger than a lower portion that contacts the diffusion.

***Response to Arguments***

5. Applicant's arguments filed 10/16/03 have been fully considered but they are not persuasive.

It is argued, at page 5 of the Remarks, that Wei does not disclose the contact is insulated from an adjacent second gate electrode by an insulating layer. This argument is not convincing because Wei discloses, as shown in Figure 9, the contact (48) is insulated from an adjacent second gate electrode by an insulating layer (32,40).

It is argued, at page 6 of the Remarks, that Wei does not disclose an insulating layer that contacts two opposing vertical sides of a second portion of a spacer and a gate electrode. This argument is not convincing due to the introduction of new matter situations. Note that Figure 19 shows the contact (50) contacts the whole side of the spacer (16) so there is no exist of the insulating layer, and Figure 20 shows the insulating layer (138) extends on only one side of the spacer, not on two opposing sides of the spacer.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (703) 308-4079. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

April 14, 2004

Hung Vu

Hung Vu

Patent Examiner